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On Phonological Redefinition of Foreign Lexical Entries: A Case of Spanish-Quechua Contact¹⁾

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I. INTRODUCTION

A student of linguistics who is engaged in describing a spoken language tries to understand the internal phonological process that conditions the sound of the language under investigation. In investigating a language, what is decisive for the linguist to explain its phonology is the information intrinsic to the given language itself, such as minimal pairs, context-sensitive distributions of allophones, morphophonemic alternations, metatheses, ordering of stress or tone, metrical properties, constraints on syllabic structure, etc.. However, in actual fieldwork, the researcher is allowed to make the best use of various practical clues other than such theoretical intralinguistic information as mentioned above.

One of the most interesting, besides helpful, methods is to know how an informant of language X pronounces the words or phrases of some other language, say, language F, foreign to the informant. For the sake of convenience, let us abbreviate the language X and the language F to L(X) and L(F), respectively. Now, suppose we have an opportunity to observe a native speaker of L(X) utter some phrase of L(F). It is desirable that the informant should not be skilled in L(F), on the one hand, but that the investigator should know in advance the phonology of L(F), on the other. For the unfamiliar sound of L(F), the native informant of L(X) would try to identify it depending on the phonological system of his own tongue L(X). He would then reproduce it in his own utterance surely with some phonic modification so that it might be in harmony with the phonology of L(X). For example, there are cases where the two phonic categories / μ_1 / and / μ_2 /, which should be functionally distinguished in L(F), are not recognized by the speaker of L(X) with the result that they are identified by him/her merely as sound of the same category / μ /. This is the case of what Weinreich called "under-differentiation".²⁾ Also there are opposite cases where the phonetic difference between the phones [ν_1] and [ν_2], which are not functionally distinctive in L(F), is recognized by the speaker of L(X) as sound of clearly distinct categories / ν_1 / and / ν_2 /. This is the case of what Weinreich called "over-differentiation".²⁾ If we observe carefully the mode of such

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2) Weinreich (1953: p. 18)

modification, it will be possible for us to get aware of the dynamic phonological function of $L(X)$, as well as of the mere discrepancy of the static phonemic inventory between $L(F)$ and $L(X)$. For it is quite probable that the phonological constraints of $L(X)$ should also operate on a foreign word, introduced to $L(X)$ from $L(F)$, with regard to the accentuation, syllabic structure, and other morphophonemic aspects.

Apart from the *ad hoc* field practice of compelling our poor informant to utter unfamiliar foreign phrases, we are often provided with natural linguistic situations in which two distinct languages, say $L(F)$ and $L(X)$, are in contact for so many years that not only the considerable number of lexical items of $L(F)$ are borrowed by $L(X)$ but also they are fully incorporated into the lexicon of $L(X)$ after receiving certain modification in agreement with the phonology of $L(X)$. In such a case, how the borrowed items are phonologically distorted is quite worth studying, in order that the light should be shed on the phonological dynamism of the recipient language, $L(X)$.

II. SOME PREPARATORY STATEMENTS

In the present paper, we shall consider the case of Spanish-Quechua contact in the central Andean region, South America. The indigeneous Quechuan language plays the part of $L(X)$, language to be described, while the superimposed official Spanish plays $L(F)$ which supplies the lexical items to be borrowed by the recipient language $L(X)$.

2.1. We shall indicate, after Weinreich³⁾, the initial of the language name at the lower left side of the phonetic transcription [...] or of the underlying representation /.../ when the necessity occurs to clarify the language in reference. For example, Weinreich's two concepts, which we mentioned above, are formulated as follows: the under-differentiation of phonemes is that $F/\mu_1/$ and $F/\mu_2/$ in $L(F)$ are neutralized in $L(X)$ into a single category $X/\mu/$.⁴⁾ The over-differentiation, on the contrary, is that the non-functional phonetic difference between $F[\nu_1]$ and $F[\nu_2]$, which belong to a single category $F/\nu/$ in $L(F)$, turns to be two distinct categories $X/\nu_1/$ and $X/\nu_2/$ in $L(X)$. Such notational convention is useful at least in two points. First, it reminds us of the fact that the linguistic value of a phonemic entity varies from one language (or dialect) to another. To give an instance in connection with the present case study, the underlying /p/ in Quechua corresponds to the sounds [p], [b] or [Φ] as its phonetic realization, whereas /p/ in Spanish corresponds only to the unvoiced occlusive [p]. The notational distinction, $q/p/$ and $s/p/$, will draw our attention to such language-specific nature of the phonological value. Second, it also reminds us of the fact that the phonetic detail also varies from a language to another. As an instance from the Spanish-Quechua case, the place of articulation of [k] in Quechua is slightly advanced than that of [k] in Spanish. And moreover the former is more lax than the latter. We shall indicate this phonetic fact by the notational distinction $q[k]$ and $s[k]$ instead of employing two different narrow

3) Weinreich (*ibid.*: pp. 7f)

4) It does not necessarily mean that the speakers of $L(X)$ do not recognize physical auditory difference between $[\mu_1]$ and $[\mu_2]$.

symbols, say [k̟] and [k̠], which would be more precise but much more troublesome. In other words, the left side index is an auxiliary device for the broad phonetic transcription that we are going to utilize to avoid the crabbedness of the micrological transcription, which is indeed unnecessary for our present discussion. Of course, this does not mean that we underestimate the IPA convention.

2.2. The Andean Spanish dialect (AS) has the inventory of segmental phonemes as shown in Table 1. From the strict viewpoint of phonology, attention should be paid to the morpheme boundary /+ / and the word boundary /#/ . We shall specify them only if they need to be explicitly represented.

The eminent difference of AS from the Peninsular Castilian (PC), which is considered to be the standard dialect of Spanish, lies in that the Castilian /θ/ is neutralized in AS, as well as in other American Spanish dialects in general, with the non-strident /s/. So we have AS/s/ indistinctively in place of PC/θ/. In the following instances, the standard Castilian orthography is represented in italics.

'to sew'	<i>coser</i>	PC/kosér/	AS/kosér/
'to cook'	<i>cocer</i>	PC/koθér/	AS/kosér/
'beer'	<i>cerveza</i>	PC/θerbéθa/	AS/serbésa/

Other differences are found not so much in phonemic as in phonetic level:

a) In PC, /x/ has a phonetic realization of strong velar fricative [x], while in AS it tends to be a weaker laryngeal [h];⁵⁾

b) The Spanish /r̄/, an iterative trill in PC, is articulated in AS as a rolled fricative, IPA [r̠], like ř in Czech. We note it as AS[r̠]. Sometimes AS[r̠] is pronounced with a voiced fricative retroflex, IPA [ɻ];

c) In PC the nasal in a word-final position, /-n#/ , is articulated with alveolar [n], whereas in AS it has a velar realization [ŋ]. This is considered to be a result of

Table 1.

p	b		f	m			w
t	d	s		n	l	r	r̄
č				ñ	ɭ		y
k	g	x					
k ^w	g ^w	x ^w	(f ^w)				
			i			u	
			e			o	
			a				

/č/ corresponds to palato-alveolar apical affricate [tʃ]

/ɭ/ corresponds to palatal lateral [ʎ]

5) We say strong/weak in the sense of the intensity of air friction.

Table 2.

p	p ^h	pʔ		m		w			
t	t ^h	tʔ	s	n	l	r		i	u
č	č ^h	čʔ		ñ	ɫ	y		a	
k	k ^h	kʔ							
q	q ^h	qʔ							
h									

Notes:

1. /č/ phonetically corresponds to the alveolo-palatal fricative [ç] in preconsonantal position and to the affricate [tʃ] in other contexts. We shall use q[ʃ] and q[tʃ] for the typological convenience.
2. C^h=aspirated occlusives; in orthography *ph, th, chh, kh, qh*
Cʔ=glottalized occlusives; in orthography *p', t', ch', k', q'*
3. /q/ is postvelar voiceless fricative [χ] in syllable-final position and occlusive [q] (or voiced [G] as free variation) in other contexts. In general terms, the plain occlusives /p t č k q/ are turned to be fricatives in preconsonantal and/or syllable-final position: [+cons]→[+cont]/__{[-syll]}
cf. Hosokawa (1980).
4. /s/ is phonetically alveolar [s] or retroflex [ʂ]
5. /ɫ/ is alveolo-palatal lateral [l_v] except before the postvelar /q/, where it is neutralized with the alveolar /l/.

the phonic interference by Quechua.⁶⁾

2.3. Table 2. shows the phonemic inventory of Quechua. The Quechuan languages are divided into numerous regional varieties. The present inventory corresponds to that of the Muñecas dialect, spoken by some 28,000 inhabitants in the northwestern part of La Paz province, Bolivia. This regional dialect is classified, according to Torero, as belonging to the Quechua IIC, along with the Cuzco, Potosí, and Chuquisaca dialects.⁷⁾ One of the distinguishing characteristics of the Quechua IIC group is that it has three series in the occlusive: the plain /p, t, č, k, q/, aspirated /p^h, t^h, č^h, k^h, q^h/ and glottalized or ejective /pʔ, tʔ, čʔ, kʔ, qʔ/.

2.4. Dealing with the phonological modification which takes place when the Spanish loan words are incorporated into the Quechuan speech, our attention should be centered on such phonemes that are found in the phonemic inventory of Spanish but are absent in that of Quechua. To put them in a contrastive manner:

s/p t č k b d g f s x m n ñ l ɫ r ỹ w y i e a o u/
q/p t č k q s h m n ñ l ɫ r w y i a u/

Consequently we have s/b, d, g, f, x, ỹ, e, o/ to our present concern. In word borrowings from Spanish into Quechua, s/x/ and s/ỹ/ are usually replaced by q/h/ and q/r/, respectively.

a) As to s/x/, note that in AS it has a phonetic quality quite assimilated to that of q/h/, i.e. laryngal [h].

6) In Quechua: [+nasal]→[+back]/__{+high} {+}

7) Torero (1972: 76-91) also see Parker (1963).

b) As to $s/\tilde{r}/$, note that in AS it is articulated as a rolled fricative $AS[\tilde{r}]$, in marked contrast to PC in which the same phoneme is realized as a trill $PC[\tilde{r}]$. In the word-initial position $s/r/$ and $s/\tilde{r}/$ are neutralized, being phonetically a fricative in AS. We should note, on the other hand, that $q/r/$ also takes the rolled fricative allophone in the word-initial, as well as the word-final, position. See the distribution chart below:

	word-initial	word-internal	word-final
$q/r/$ — $q[\text{r}]$	—	+	—
$q[\tilde{r}]$	+	—	+
$AS/\tilde{r}/$ — $AS[\tilde{r}]$	+	+	—
$AS/r/$ — $AS[\text{r}]$	—	+	+

In Quechua $[\text{r}]$ and $[\tilde{r}]$ are in complementary distribution, whereas in Spanish we have the minimal pairs (r/\tilde{r}) such as $/karo/$ 'expensive' vs. $/ka\tilde{r}o/$ 'car'. As a matter of fact, such phonetic properties of AS are considered to be results of the phonetic interference by the native Quechua-speaking people. So we shall put the $s/x/$ and $s/\tilde{r}/$ cases out of the present consideration.

III. DESCRIPTION

3.1. Constraints on the syllable structure

The loan words are to be adjusted in agreement with the preferred syllable structure (PSS) constraints in the recipient language. The PSS constraints in Quechua is formulated in a canonical form shown below:

$$\#(C)V(C_1^2V)_i^2(+C_1^2V)_o^n(+)(C)\#$$

where the final $-C\#$ is limited to the set $/m, n, r, k, q, y/$ and in fewer cases $/s/$, of which $/-k\#/$ and $/-q\#/$ are realized as unvoiced fricatives.⁸⁾

(1) The word-initial consonant cluster $s/\#C_1C_2V_1-/$ should be avoided in the phonological structure of Quechua. They are modified either into $q/\#C_2V_1-/$ with C_1 dropped away, as shown in the following:

1. 'dish' $s/plato/ > q/latu/$ 'metal dish'
2. 'banana' $s/plátano/ > q/latánu/$
3. 'wheat' $s/trigo/ > q/riyu/\sim q/\check{c}iyu/$

In 1. $q. latu$ refers to the dish made of metal in contrast to the traditional ceramic dish *žuwi*.

So far as it is not particularly mentioned, the lexical meanings of the Quechuanized items are roughly the same to those of the original Spanish items.

or into $q/C_1V_1C_2V_1-/$ with the identical vowel reproduced between the clustered consonants:

4. 'public square' $s/plasa/ > q/palasa/$
5. 'fruit' $s/fruta/ > q/phuruta/$

8) This formulation is a refinement of Wölck (1972: pp. 3f).

6. 'to barter'⁹ s/trok-ar/ > q/túrka-y/
 7. 'to believe' s/kre-er/ > q/kíri-y/

In 6. and 7. Quechuan infinitive marker q/+y/ is suffixed to the borrowed Spanish verb stems.

(2) The root-final closed syllable is not proper in Quechua. In borrowing words, it is usually opened by the addition of the vowel q/a/ [*u* high, *u* back].

8. 'rice' s/aĩrós/ > q/arúsa/
 9. 'animal' s/animál/ > q/animála/
 10. 'trousers' s/kalsón/ > q/karsúna/

In orthography: 8. *arroz* 9. *animal* 10. *calzón*

This syllabic modification is observed especially when the original final closed syllable is stressed. By the vowel addition, the stress is maintained on the same syllable as in the source item.

(3) The accentuation in Quechua is simple and is not functional. The stress always falls on the penultimate syllabic vowel. With the suffixation, the stress is automatically moved rightwards:

- 'to go, to walk' /púri+y/
 'You go' (2.sg.pres.) /puri+nki/
 'You come' /puri+mú+nki/
 'You came' (past.) /puri+mu+rqa+nki/
 'You came' (2.pl.) /puri+mu+rqa+nkí+čiq/
 'And you came' /puri+mu+rqa+nki+čiq+taq/

where the /+ / stands for the morpheme boundary, not always for the syllable boundary.

In Spanish, on the other hand, the stress is not so automatically distributed as in Quechua. Although it is basically regulated by the rule

$$[+syll] \longrightarrow [+stress] / \text{--- } C(V) \left(\begin{array}{l} \left\{ \begin{array}{l} -s \\ -n \end{array} \right\} \text{plur.} \\ \left\{ \begin{array}{l} -n \\ -s \end{array} \right\} \text{3. sg.} \end{array} \right)$$

there are still a number of lexical items with exceptional accentuations that do not obey this rule. They are marked in the Castilian orthography. When the Spanish words with such "orthographic accent" are borrowed, the stress is to be moved to the penultimate syllable so as to be in harmony with the regular stress distribution in Quechua.

11. 'coffee' s/kafé/ CVCV́ > q/káphi/ CVCV
 12. 'adobe' s/ádohe/ V́CVCV > q/arúwi/ VCVCV
 13. 'Saturday' s/sábado/CVCVCV́ > q/sawáru/ CVCVCV
 14. 'same' s/igwál/ VCwV́C > q/inwal/ V́CCVC

As to the Quechuan items in the present paper, the stress is marked only if the original Spanish stress is distorted.

3.2. Modification of voiced occlusives

In Spanish the occlusive consonants are distinctive as to the feature [voice], while in Quechua the feature is not functionally relevant. What sort of modification, then, are expected when the loan words with voiced occlusive segments in original Spanish are introduced to the Quechuan lexicon? It would be natural if the value of distinctive feature [voice] be neutralized so that s/b, d, g/ should be replaced by their structural counterparts q/p, t, k/, respectively. As it is, however, such "natural" replacements are not always observed. In the majority of the actual cases, s/b/ is replaced rather by q/w/, while s/d/ is replaced by q/r/ and s/g/ by q/y/. These replacements are queer at first sight. It is nevertheless explained as a natural modification if we consider the phonological properties of both languages in contact.

In general terms, when a foreign phoneme $F/M/$ is introduced to $L(X)$ as a part of the loan words from $L(F)$, the sound is recognized by the speaker of $L(X)$ not as an abstract entity $F/M/$ but rather as a concrete phonetic entity, say $F[\mu]$. Then the speaker reinterprets the sound so as to give it some stable status within the phonological structure of his/her own language.

With regard to the Spanish voiced occlusives, we remember the well-known context-sensitive rule in Spanish phonology, both Castilian and American: The voiced segments s/b, d, g/ are articulated as the homologous fricatives $[\beta, \delta, \gamma]$ except in the post-nasal position or in the utterance-initial one. The rule is formulated as follows:

$$\begin{bmatrix} +\text{cons} \\ -\text{nasal} \\ +\text{voice} \end{bmatrix} \rightarrow [+cont]/[-\text{nasal}](\#) \text{ ______}$$

In the following sections, we shall examine each process of the modifications on s/b, d, g/ in this order.

3.2.1. Modification of s/b/: The sets of articulatory distinctive features that define s/b, p/ and q/p/ are identical but the feature [voice]. In Spanish loan words introduced into Quechua, the voiceless s/p/ is replaced by q/p/ so far as it does not violate the syllabic structure of Quechua.

15. 'comb' s/peyne/ > q/pini/
16. 'handsome' s/g^wapo/ > q/wapu/ 'energetic'
17. 'godfather' s/kon-padre/ > q/kunpari/

The Spanish diphthongs are not to be admitted in the Quechuan phonology, so that they are to be modified in various ways, which we shall take note in reference to each example hereafter. The diphthongs s/ye/ and s/ey/ are usually modified into the monophthong q/i/ as *peine* > *pini* in 15.

The q/p/ has as its phonetic realization $q[p \sim b]$, varying freely without any referential or stylistic difference. Only in a few limited cases s/b/ is replaced by q/p/.

18. 'bag' s/bolsa/ > q/pulsa/
19. 'mockery' s/burla/ > q/purla/
20. 'pancake' s/buñwélo/ > q/puñúylu/

In most cases, *s/b/* is replaced by *q/w/* rather than by *q/p/*, as is seen in the following instances:

- 21. 'horse' *s/kabaʎo/ > q/kawaʎu/*
- 22. 'to dig' *s/kab-ár/ > q/káwa-y/*
- 23. 'key' *s/ʎabe/ > q/ʎawi/*
- 24. 'oats' *s/abena/ > q/awina/*

As was already mentioned, the voiced segment *s/b/* is to be spirantized in the most phonological environments but the post-nasal.

$$b \longrightarrow \beta / [-\text{nasal}] (\#) \text{ ______ }$$

From now on, we shall refer to the post-nasal environments as "marked" and to the others "unmarked" in reference to the Spanish spirantization rule. In the words listed above (21.~24.), the voiced bilabial always finds itself in the unmarked context in which the spirantization takes place. So the Spanish phonetic forms are:

- 21. [kaβáʎo], 22. [kaβár], 23. [ʎáβe], and 24. [aβéna].

What calls our attention here is the fact that the Quechuan counterpart *q/w/* can phonetically be bilabial fricative [β], though the friction of *q[β]* is slightly stronger than that of *s[β]*. From the phonemic point of view, this *q[β]* constitutes a context-free variation of the unrounded glide *q[ʷ]* which is the regular realization of *q/w/*, whereas the *s[β]* is context-sensitive allophone of *s/b/*.

It should be noted that the process of modification is not a direct replacement like

$$s/b/ \longrightarrow q/w/$$

but rather it is understood as a process of redefinition based on the phonetic identification between the allophones such as:

$$s/b/ \xrightarrow{1} s[\beta] \xrightarrow{2} q[\beta] \xrightarrow{3} q/w/ \xrightarrow{4} q[ʷ]$$

where 1 is the context-sensitive realization according to the Spanish phonology; 2 is the phonetic identification between the allophones; 3 is the phonemic redefinition; and 4 is the regular realization now according to the Quechuan phonology. To give just one example, the process of phonic modification of the item 21. 'horse' is considered to be as follows:

underlying form	<i>s/kabaʎo/</i>
surface form	<i>s[kaβáʎo]</i>
identification	<i>q[kaβáʎʷ]</i>
redefinition	<i>q/kawaʎu/</i>
surface form	<i>q[kawáʎu]</i>

where the lateral *s[ʎ]* is palatalized alveolar apical while the *q[ʎ]* is alveolo-palatal predorsal. *q[ʷ]* is unrounded intervocalic glide. *q[k]* is lax unaspirated occlusive unspecified in the voice (so that its auditory image is similar to that of [g]). *q[u]* is free variation of *q[ʷ]* (*q/u/*, see 3.4.).

In the cases where *s/b/* stands in the marked phonological context, namely the post-nasal, it is not spirantized into *s[β]* but it maintains the occlusive value *s[b]*. This is the reason why the post-nasal *s/b/* in loan words is replaced by *q/p/* not by *q/w/* for this time.

25. 'to change' *s/kambyar/* > *q/kampiya-y/* 'to barter'
 26. 'drum' *s/tambor/* > *q/tampuru/*
 27. 'top' (to spin) *s/rumbo/* > *q/rumphu/*

In 25. the diphthong syllable *s/bya/* is dissolved into monophthong syllables *q/-pi-ya-/*.

27. In this case, */p/* is aspirated exceptionally for some reason.

In some textbooks of phonology, Spanish voiced stops are said not to be spirantized in the wordinitial position. Strictly speaking, however, it is precise to say that the spirantization rule also applies to the word-initial *s/#b-*, *#d-*, *#g-* only except in the cases where they stand in the absolute beginning of the utterance. In the following examples, the word-initial *s/#b-* is replaced by *q/w/* not by *q/p/*.

28. 'candle' *s/bela/[béla]* > *q/wila/*
 29. 'cow' *s/baka/[báka]* > *q/waka/* 'cattle'
 30. 'tray' *s/batea/[batéa]* > *q/wathiya/*

As for 29. *s/baka/* refers only to female cattle, whereas *q/waka/* refers to bovine cattle in general without distinction of the sex.

Despite the fact that the initial *s/b/* is not supposed to be spirantized when the word is pronounced by itself, it no longer maintains its non-fricative articulation if the word is preceded by other words, except that the preceding word has a nasal ending.

- | | | |
|------------------|-----------------------|-------------------|
| 'candle' | <i>s/#bela#/</i> | <i>s[béla]</i> |
| 'the candle' | <i>/#la#bela#/</i> | <i>[lapéla]</i> |
| 'two candles' | <i>/#dos#bela+s#/</i> | <i>[dospélas]</i> |
| 'without candle' | <i>/#sin#bela#/</i> | <i>[simbéla]</i> |

It is therefore natural that *s/#b-* should also be replaced by *q/w/* through the identification process *s/b/* → *s[β]* → *q[β]* → *q/w/*. Such process is considered to be common in the cases of *s/#d-* and *s/#g-*, which we shall examine later.

Now we must remember the cases of */bolsa/* (18), */burla/* (19), */buñwelo/* (20). These Spanish words with the initial */b/* are not modified into **/wulsa/*, **/wurla/*, **/wuñuylu/* but into *q/pulsa/*, *q/purla/*, *q/puñuylu/* with the initial non-fricative *q/p/*. Here we can get aware of another aspect of the dynamism in Quechuan phonology: According to the morphophonemic constraints in Quechua, the semi-vowel [-cons, -syll, a_{back}] cannot be directly followed by the segment [+syll, +high, a_{back}], i.e., high vowel that agrees with the preceding semi-vowel as to the specification of backness. See the matrix below:

QUECHUA	/w/	/y/	/a/	/i/	/u/
[high]	+	+	—	+	+
[back]	+	—	—	—	+

So we do find the sequences /wa, wi/ and /ya, yu/ but not */wu/ nor */yi/ in the indigenous lexical forms of Quechua. It is highly probable, then, that the syllables like s/-bo-/ or s/-bu-/ are blocked to become **Q***/wu/ which would violate the phonological constraint in Quechua. Instead, they are to be modified into **Q**/pu/.

In Quechua, the sequence /uw/ and /iy/ are not preferred either. They are found only in those plurimorphemic stems that are derived by suffixation: i.e., **Q**/-u+w-/ or **Q**/-i+y-/ , where /+ / stands for the morpheme boundary. When, due to the word borrowing from Spanish, there occurs such word that has /uw/ in its root, it is often the case that a metathesis takes place in order to avoid such undesirable sequence. See the examples below:

31. 'copper' s/kobre/ > **Q**/kuwri/→/kurwi/
32. 'nephew' s/sobrino/ > **Q**/suwrinu/→/surwinu/
33. 'charcoal' s/karbón/ > **Q**/karwuna/→/kawruna/

The metathesized forms /kurwi/, /surwinu/ and /kawruna/ are more stable in Quechua. In 33. the inadmissible sequence **Q**/wu/ is avoided by the metathesis. The formula of the metathesis above is: VC₁C₂V~VC₂C₁V, where C stands for a segment [-syll] including glides. In Quechuan phonology, such metathesis is highly expected, not only as to the loan words, but generally when the word root has a semi-vocalic glide /w/ or /y/ as one of the two non-syllabic segments between the syllabic vowels.⁹⁾

So far, we have considered in some detail about the Quechuanization process of the segment s/b/ in varied phonological environments. It has been claimed that the modification process consists of a phonetic identification in the level of allophone and then of a redefinition into the underlying level. Such process is supposed to be common to the borrowing of the words with those Spanish sound s/ d, g, f, e, o/ that are also absent in the Quechuan phonemic inventory.

3.2.2. Modification of s/d/: The spirantization rule also applies to this voiced segment: i.e., s/d/ is converted to the fricative [ð] after any non-nasal segment even beyond the word boundary.

d → ð/[nasal] (#)____

s[ð] is post-dental, which is much more lax than the English interdental strident [ð].

In the majority of the cases, s/d/ in the unmarked context is replaced by **Q**/r/, the phonetic quality of which is a non-lateral flap in the environment in question. See the following instances:

34. 'barley' s/sebada/[sepáða] > **Q**/siwara/

9) To mention just a few examples:

- 'goat' /kawra/~/karwa/ (from Spanish *cabra*)
- 'flame' /lawray/~/larway/
- 'fish' /čʔawŋa/~/čʔaŋwa/ (from Aymara *ch'awlla*)
- 'liver' /kʔiwča/~/kʔičwa/
- 'quinoa' /kiwña/~/kiñwa/ (a kind of millet: *Chenopodium quinoa*)
- 'chaplet' /rusayru/~/rusaryu/ (from Spanish *rosario*)

These metatheses take place with no change in their referential meanings.

35. 'plow' s/arado/[aráðo] > q/araru/
 36. 'to stay' s/ked-ar-se/[keðárse] > q/kira-ku-y/
 37. 'to care' s/kʷid-ar/[kʷiðár] > q/kuyra-ku-y/

In 36. the Spanish reflexive particle *se* is replaced by the Quechuan reflexive-interestive verbal suffix q/+ku/ followed by the infinitive suffix q/+y/.

In 37. the initial syllable with labio-velar head s/kʷi-/ is resolved into q/kuy-/ with a syllabic vowel /u/ followed by a palatal glide /y/ in harmony with the Quechuan PSS constraint.

As for the word-initial s/#d-/, the problem seems to be somewhat complicated, though basically it is redefined into q/r/.

38. 'finger' s/dedo/[déðo] > q/riru/
 39. 'spirit' s/difunto/[diΦúnto] > q/riphuntu/
 40. 'day' s/día/[día] > q/riya/
 39. means 'spirit of dead people'
 40. used as in q. *uchuriyas* 'a period of mourning', from Spanish *ocho días* 'eight days'.

Remember that the q/r/ in word-initial and word-final positions takes phonetically a rolled fricative value. We can suspect this phonetic quality to be a basis for the redefinition of s/d/ into q/r/. But it is not yet a convincingly supported view. We add a few exceptional cases, where s/#d-/ is replaced by q/n/, q/t/ or q/y/.

41. 'dinamite' s/dinamita/ > q/ninamita/
 42. 'devil' s/dyablo/[dʲáplo] > q/ławtu/
 43. 'God' s/dios/[dʲos] > q/yus/

In 42. the palatalized s[dʲ] is replaced by the Quechuan palatal lateral and moreover the lateral in the next syllable is also palatalized in assimilation. As for 43. note that the alternation q/t/ ~ q/y/ is frequent in Quechuan phonology.

As in the case of s/b/, the spirantization rule is not applied to s/d/ when it stands next to a nasal consonant. This is why s/d/ in this marked environment is replaced by q/t/ not by q/r/. Examine the instances below:

44. 'band' s/banda/ > q/wanta/
 45. 'to order' s/mandar/ > q/manta-ku-y/
 46. 'to understand' s/entender/ > q/intinti-ku-y/
 47. 'soft' s/blando/ > q/lantu/

44. means 'band of musicians', especially the brassband which plays a central role in rustic festivals nowadays.

In 45. 46. the interestive suffix (or beneficiary marker) q/+ku/ is added.

In 47. the initial consonantal cluster is resolved.

Note that q/t/ is a segment not specified in regard to the voice, with the result that its phonetic realization fluctuates freely between the voiceless [t] and voiced [d], always

being lax unless it is aspirated or glottalized.

The intervocalic consonantal cluster *s/-dr-/* is to be resolved into a single consonant *q/r/*, though it is observed that the preceding vowel is slightly lengthened as compensation.

48. 'godmother' *s/ko-madre/[komáðre] > q/kumari/[kuma·ri]*

49. 'Peter' *s/pedro/[pédro] > q/piru/[pi·ru]*

3.2.3. Modification of *s/g/*

Parallel to the cases of *s/b/* and *s/d/*, the voiced velar *s/g/* takes a fricative allophone *s[χ]* in the unmarked contexts other than the post-nasal. It is usually the case that this *s[χ]* is identified with *q[j]*, of which *q/y/* is the underlying representation. Thus occurs the modification as follows. Note that *s/g/* is replaced by *q/y/*:

50. 'to pay' *s/pagar/[payár] > q/páya-y/*

51. 'marjoram' *s/orégano/[oréχano] > q/uriyánu/*

52. 'burden' *s/karga/[káχa] > q/karya/*

53. 'long' (adj.) *s/largo/[larχo] > q/laryu/*

In 50. the Spanish verb stem */paga-/* is borrowed, to which the Quechuan infinitive suffix *q/+y/* is attached.

51. refers to 'wild marjoram' (*Origanum vulgare* L.), a plant used for seasoning.

52. *q. karya* is a unit of weight, corresponding to about 70 Kg..

The word-initial *s/#g-/*, which might be pronounced with non-fricative *[g]* in an isolated word list, is also spirantized in most utterance contexts for the same reason as we have already seen in reference to the *s/#b-/* (see p. 9). Thus we see the modification of *s/g/* into *q/y/* also in this context:

54. 'to gain' *s/ganar/ > q/yána-y/*

55. 'rooster' *s/gaŋo/ > q/yaŋu/~/ŋaŋu/*

In Quechuan utterance, the loan 54. appears usually with the stem */yana+ri+ku-/*.

As for 55. the form *q/ŋaŋu/* is common. The alternation between */y/* and */ŋ/* is frequently observed in the indigeneous Quechuan phonology (cf.: ex. 43.).

We find a few cases where *s/g/* is replaced by *q/n/* before a liquid:

56. 'church' *s/iglesia/[iχlésʷa] > q/inlisa/[ɪŋlisa]*

57. 'tiger' *s/tigre/[tiχre] > q/tinri/[tiŋri]*

In these cases, perhaps, the undesirable sequence *q/iy/* was avoided. Also relevant is the inherent Quechuan phonological rule that *q/n/* be realized as a velar nasal *[ŋ]* before a liquid, as well as before any other non-syllabic segment.

$$\text{QUECHUA: } [+nasal] \longrightarrow \left[\begin{array}{c} +back \\ +high \end{array} \right] / \text{---} \left\{ \begin{array}{c} [-syll] \\ + \\ \# \end{array} \right\}$$

From a narrow phonetic viewpoint, the place of articulation of *q[ŋ]* is slightly advanced than that of *s[ŋ]*, which is the positional allophone of *s/n/* before velar consonants.

As regards *s/g/* in the marked post-nasal context, parallel to the post-nasal *s/b/* and *s/d/*, it is expected in proper Spanish utterances to maintain the occlusive value. Therefore it is not to be replaced by *q/y/* but probably by *q/k/* on word borrowing. Regrettably, we do not find, perhaps accidentally, an adequate example among the list of Soanish loan established in the Quechuan everyday lexicon.

In the utterance of Quechuan informants, the loaned */g/* is sometimes heard to be pronounced with unvoiced velar fricative [x] as in:

58. 'liking' *s/gústo/* > *q[xústu]*

59. 'ear of grain' *s/espiga/* > *q[ispíxa]*

We should also take note of an exceptional case:

60. 'small needle' *s/aguxa/[aχúxa]* > *q/awha/[áuha]*

which is found among the vocabulary of everyday use.

3.2.4. Modification of *s/g^w/*

With regard to the labio-velar */g^w/*, the spirantization rule also holds good. In word borrowing, the phonetic identification is therefore to be based mainly upon its positional allophone in the unmarked non-postnasal environments. According to Malmberg, the structural parallelism in respect of the spirantization in Spanish is:

b-β

d-ð

g-χ

g^w-w

that is, the fricative counterpart of *s/g^w/* is *s[w]*.¹⁰⁾ Thus we see the modification of *s/g^w/* into *q/w/* as is attested in the following instances:

61. 'guano' *s/g^wano/* > *q/wanu/* 'fertilizer'

62. 'to endure' *s/ag^wantar/* > *q/awanta-y/*

63. 'mare' *s/yeg^wa/* > *q/iwa/*

3.3. Modification of *s/f/*

In AS, */f/* tends to be pronounced with a voiceless bilabial fricative [Φ]. On the other hand, the Quechuan aspirated stop [p^h] (←*/p^h/*) can phonetically be [Φ] as free variation. Although *q[Φ]* sound is more strident than *as[Φ]*, it is by no means unnatural that *as[Φ]* should be phonetically identified with the fricative allophone of *q/p^h/* by the native speakers of Quechua. So we have the following instances of the modification of *s/f/* into *q/p^h/*:

64. 'coffee' *s/kafé/* > *q/káphⁱ/*

65. 'easy' *s/fásil/* > *q/p^hasífa/*

66. 'photography' *s/foto/* > *q/p^hutu/*

67. 'festival' *s/fiesta/* > *q/p^hista/*

Once these lexical entries are established in Quechuan everyday lexicon, they are

10) Malmberg (1961)

subject to the regulation of the proper phonology of Quechua without respect to that of Spanish. That is why the words like 'coffee', 'festival', etc. are pronounced usually with the aspirated bilabial stop [pʰ]. For [Φ] is less common as a phonetic realization of q/pʰ.¹¹⁾

The cluster s/fw¹²⁾, which appears only in the word-initial position, is not admissible in Quechua due to its PSS constraint. But as for its modification we have only the following instance at present:

68. 'strong' s/fwerte/ > q/pʰurti/

3.4. Modification of vowels

Quechua has phonemically three-valued vocalic system. It is not a surprising fact that s/i/ and s/e/, functionally distinct in the five-valued Spanish vocalism, should be merged indistinctively into q/i/ when the Spanish words are incorporated into the Quechuan speech. We see the same reason why s/o/ is replaced by q/u/. The functionally distinct s/o/ and s/u/ have only a single counterpart in Quechua, namely q/u/.

Once s/i, e/ and s/u, o/ are neutralized respectively into q/i/ and q/u/, their behavior are subject to the phonological adjustment in Quechua:

a) The high front q/i/ has context-sensitive realization as follows: in the neighborhood of a postvelar /q/, it becomes [ɛ] articulated with the tongue root retracted, whether stressed or not¹³⁾; in the absence of /q/ in the neighborhood, it becomes a lax non-low [ɪ] or [e] if it is not stressed, and tense [i] if it is stressed and/or it is preceded by an aspirated or glottalized occlusive.

b) The high back q/u/ is realized context-sensitively as follows: in the postvelar environment [ʌ] with the tongue root retracted¹³⁾; in the non-postvelar environment, lax unrounded free variations [ʊ, ʊ, ɤ] if it is not stressed, and tense but unrounded [u] if it is stressed and/or it is preceded by an aspirated or glottalized occlusive.

The vowel modification, or neutralization of the Spanish vowels of five values into those of three values in Quechua, must have already been observed in the majority of the loan words cited so far. Here we have several additional instances with more clarity:

- 69. 'mountain' s/monte/ > q/munti/[múntɪ]
- 70. 'to be born' s/naser/ > q/nasi-ku-y/[nasiku]
- 71. 'to think' s/pensar/ > q/pinsa-ku-y/[pínsákuj]
- 72. 'breast' s/pečo/ > q/piču/[pítʃu]

11) It is observed that the Quechuan-Spanish bilinguals are inclined to pronounce these words with Spanish-like fricative bilabial articulation instead of the monolingual Quechuan aspirated articulation. This is a sociolinguistic matter of interest rather than a phonetic one.

12) or monophonemic /fʷ/ according to Malmberg, *ibid.*

13) [+syll]→[n ATR]/([−syll]_{+son})[−syll]_{n ATR}, where [n ATR]→[m ATR]/[m ATR], by the naturalness convention; and [m ATR]→[−ATR], by the markedness convention. See Hosokawa (1981: 126–129). Prof. Shimizu suggested that the pharynx width might be expanded in the articulation of q[e] and q[ʌ]. Also see Solís et al. (1979).

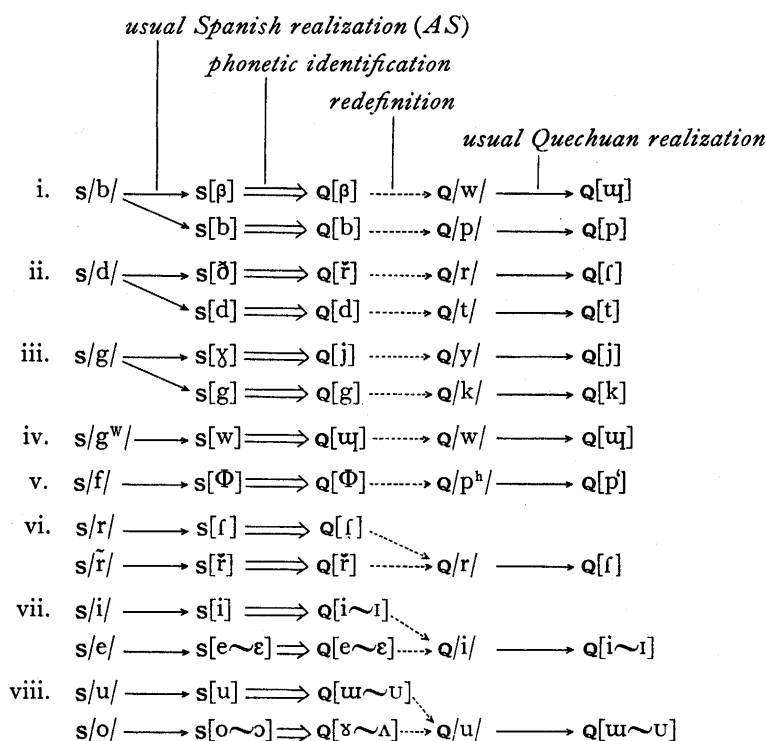
73. 'ball' s/pelota/ > q/piluta/[pílúta]
 74. 'brother' s/ermano/ > q/irmanu/[irmánu]

In 69. s. *monte*, which means 'mountain, hill', turns to mean 'woods, forest' in Q. *munti*.

In 70. 71. the reflexive suffix q/+ku/ is added to the borrowed Spanish verb stems.

3.5. Summary

Below are given the mode of the phonetic identification and the phonemic redefinition of the Spanish segmental entities incorporated into the Quechuan phonological structure.



IV. CONCLUDING REMARKS

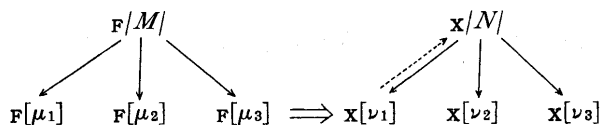
What we have examined so far with special reference to the Spanish-Quechua word borrowing is summarized in general terms as in the following.

A foreign lexical entry is incorporated into the structure of the recipient language through the phonic modification, which we consider consists of the three steps:

- 1) The segmental phoneme $F/M/$ is realized as a positional allophone $F[\mu]$ in accordance with the context-sensitive rule in the phonological system of the source language F ;
- 2) Then $F[\mu]$ is phonetically identified with $x[\nu]$, which is an allophone already existent in the phonological system of the recipient language X ;
- 3) Then, according to the phonology of $L(X)$, the identified sound is redefined as

a realization of the underlying $\mathbf{x}/N/$.

The identification should be based on the fact that $\mathbf{F}[\mu]$ and $\mathbf{x}[\nu]$ have quite a similar phonetic quality and moreover that there is no serious discrepancy between the phonological environments in which both allophones appear in the respective languages. Note that the phonological behavior of $\mathbf{F}/M/$ in $L(\mathbf{F})$ and $\mathbf{x}/N/$ in $L(\mathbf{X})$ are different, in spite of the fact that these segmental entities can be defined by nearly identical set of distinctive features in universal terms. Once the foreign sound $\mathbf{F}/M/$ is replaced by the indigenous sound $\mathbf{x}/N/$ and so fixed in $L(\mathbf{X})$, it behaves exclusively in accordance with the language-specific phonological regulations of $L(\mathbf{X})$. Thus, to schematize:



where the $\mathbf{F}[\mu_1, \mu_2, \mu_3]$ are the allophones of the underlying $\mathbf{F}/M/$ on the one hand, and $\mathbf{x}[\nu_1, \nu_2, \nu_3]$ are those of $\mathbf{x}/N/$ on the other.

Observing such modification process, one could deduce not only the rules that govern the segmental allophones in $L(\mathbf{X})$, but also certain constraints on the syllabic and/or metrical structure in $L(\mathbf{X})$.

To conclude the present article, let us recapitulate the reason why the phonic modification of the loan words is worth observing from the viewpoint of linguistic description.

Suppose, for example, that we do not observe the phonological entity φ in the linguistic corpus of $L(\mathbf{X})$ that we are investigating. Let φ be some segmental sequence or let it be a certain sound in a certain environment. Given the fact that we do not observe the phonological entity φ , whether context-free or -sensitive, in the corpus of $L(\mathbf{X})$, we might guess that there should be a linguistic rule, or rules, that blocks/block the occurrence of φ . But it would be no more than a weak argument based on the negative fact that there is no such instance so far as we have observed in the available texts or samples of speech. We do not have any stable basis to decide whether it is essential absence prescribed by some linguistic rule in the phonology of $L(\mathbf{X})$ or it is merely a matter of contingent absence. In other words, the level of adequacy in our argument cannot be descriptive so much as observational. If, however, we observe the additional fact that the entity φ brought into $L(\mathbf{X})$ with some foreign lexical entry from $L(\mathbf{F})$ is dissolved or annulled through certain modification, then we are allowed to make a positive claim that there should be a phonological constraint in $L(\mathbf{X})$ that does exclude the occurrence of the entity φ . The case of $*/wu/$ and $*/yi/$ in Quechua was a good instance of this.

As linguists, we ought to bear in mind that a higher descriptive adequacy can be achieved in the study of the internal structure of a language if we take some inter-linguistic clues into careful consideration.

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